Asian Carp Fact Sheet – September 2012

Michigan Department of Natural Resources

Fisheries Division

All about Asian Carp

- Asian carp are a type of fish native to Asia that have been introduced or could be introduced in the United States. Asian carp are regarded as highly invasive species in the U.S. capable of causing economic, ecological or human health harm. They include the flowing species:
    - bighead carp (*Hypophthalmichthys nobilis*),
    - black carp (*Mylopharyngodon piceus*),
    - grass carp (*Ctenopharyngodon idella*),
    - silver carp (*Hypophthalmichthys molitrix*), and
    - large-scale silver carp (*Hypophthalmichthys harmandi*).

- The term "Asian carp" has been used in the media to include those species that pose an immediate and potentially grave biological concern to the fisheries community in the mid-west. While the Michigan Department of Natural Resources (DNR) believes all five species of Asian carp listed above pose a significant threat to the biological community and recreational opportunities, in the Great Lakes region it is especially concerned with the bighead and silver carp (Clapp et al. 2010).
- Bighead and silver carp migrate up streams or rivers to breed; eggs and larvae drift downstream to develop. These fish are fast growing and can weigh up to 100 pounds. They are also highly prolific, producing up to one million eggs.
- Bighead and silver carp are filter feeders, straining tiny plants (phytoplankton) and animals (zooplankton) out of the water. By eating plankton, the carp compete with native filter feeding fish, such as lake whitefish, as well as the young life stages of many fish species such as walleye and yellow perch. This competition for food can potentially disrupt the entire food web in a water body.
- Bighead and silver carp were imported into the southeastern U.S. in the 1970s to remove algae and suspended matter out of catfish farm ponds and wastewater treatment ponds. While the exact manner of released into the wild is still debated, it is widely believed during large flood events in the mid-1990s, some of the farm ponds overflowed their banks and Asian carp were released into local waterways in the Mississippi River Basin.
- Although live grass carp have some commercial applications in the U.S. it is illegal under federal law to transport live specimens of black, bighead, silver and large-scale silver carp across state lines. Furthermore all five species are illegal to transport, possess live or stock under state law in Michigan.

The Concern to Michigan

- Bighead and silver carp are spreading throughout streams, rivers and lakes in the Mississippi River and Great Lakes region. Where established their populations have been increasing with the fastest expansions occurring in the Missouri and Illinois Rivers. They are well-suited to the climate of the Great Lakes region, which is similar to that of their native range in Asia. If introduced to the Great Lakes these fish are expected to flourish in the near shore areas and large river tributaries.
- Researchers predict bighead and silver carp, due to their large size and high reproductive rates, pose a significant threat to disrupt the food chain that supports the native fish of the Great Lakes, such as walleye, yellow perch and lake whitefish. Such a disruption may result in diminished recreational and commercial fishing opportunities in the region.
- Additionally, silver carp pose a direct threat to human health due to their propensity to leap high out of the water when disturbed by vibrations like those commonly caused by recreational watercraft. Boaters can and have been injured when hit by leaping fish weighing up to 40 pounds. This has the potential to threaten Michigan's recreational economy because fear of injury could diminish the desire to recreate in areas inhabited by these fish.

Actions to Prevent the Spread

- The Chicago Sanitary and Ship Canal connects the Mississippi River to the Great Lakes via the Illinois and Des Plaines Rivers. To prevent Asian carp from entering the Great Lakes, the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, the State of Illinois, the International Joint Commission, the Great Lakes Fishery Commission and the U.S. Fish and Wildlife Service have worked to install and maintain two permanent electrical barriers on the Chicago Sanitary and Ship Canal to keep Asian carp from reaching Lake Michigan. An electrical barrier strategy was selected, rather than a permanent barrier, to allow for movement of barges through the waterway.
- The electrical barrier system on the Chicago Sanitary and Ship Canal is not a fail-safe system, whereas a permanent barrier or biological separation of the Great Lakes and Mississippi River Basins would prevent bighead and silver carp from entering Lake Michigan via the ship canal pathway. Although an electrical barrier acts to repel the fish, it doesn't kill them.
- In December 2009 during maintenance of the electrical barriers that required the barriers to be turned off, a segment of the Ship Canal was treated with an organic compound (rotenone) used to eliminate all species of fish in the area and prevent movement of fish through the area while the maintenance occurred. During this event, one Asian carp was found in the vicinity of the electrical barrier.
- Environmental DNA (eDNA) has been employed upstream of the barrier in an effort to detect any silver or bighead carp that may have gotten through. Unfortunately eDNA evidence indicates some bighead and silver carp have likely moved past the barrier towards Lake Michigan.
- Silver carp eDNA has been detected above the barrier in the Calumet River and Calumet Harbor near Lake Michigan and heavy surveillance is continuing to occur in Southern Lake Michigan and its large tributaries.
- In 2011, silver carp and bighead carp eDNA was detected in Lake Erie. It is unclear how these fish could have gotten into Lake Erie but efforts are currently underway to verify and assess the situation.
- The presence of eDNA doesn't indicate a breeding population has been established but only that at least one fish is present in the area sampled. Research suggests 10 to 15 fish in the correct spawning habitat are needed to establish a new population.

Michigan's Response

- In December 2009, after federal and Illinois officials failed to identify a plan of immediate and effective action, Michigan Attorney General Mike Cox asked the U.S. Supreme Court to immediately order federal, state and local officials responsible for Chicago-area locks and waterways to temporarily close them to stop Asian carp from entering the Great Lakes. He stated that, "The actions of Illinois and federal authorities have not been enough to assure us the Lakes are safe." Cox continued "That's why the waterways must be shut down until we are assured that Michigan will be protected."

Several other Great Lakes states subsequently joined in this action however the U.S. Supreme Court refused to hear the case.

- Michigan DNR has developed an Asian Carp Management Plan. This plan outlines surveillance measures to be conducted annually in Southern Lake Michigan and the large Southwest Michigan tributary rivers. The plan also spells out the procedures to be followed if Asian carp are detected in the state's waters.
- State and local officials as well as several of Michigan's elected representatives in Washington D.C. have continued to call upon the federal government to implement a permanent solution to the Asian carp threat posed by the Chicago Sanitary and Ship Canal.

Progress and Current Situation

- If you're looking for information on the current status of Asian carp in the U.S., please bookmark www.asiancarp.us and visit it often.

Chicago Area Waterways Map

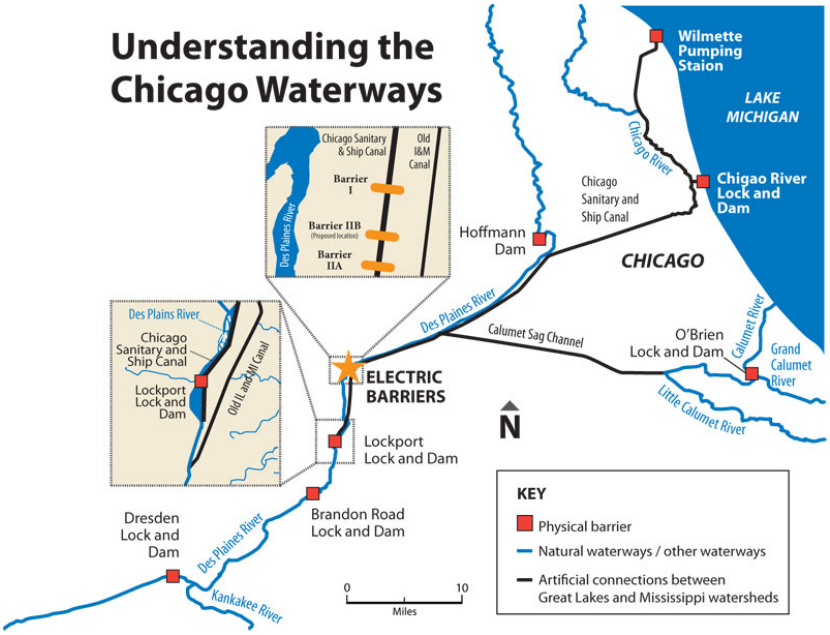

Image courtesy of Michigan Sea Grant

For further information, or to provide written comment, contact:
Tammy Newcomb
Statewide Research Manager
P.O. Box 30446, Lansing, MI 48909
(517) 373-3960
newcombt@michigan.gov